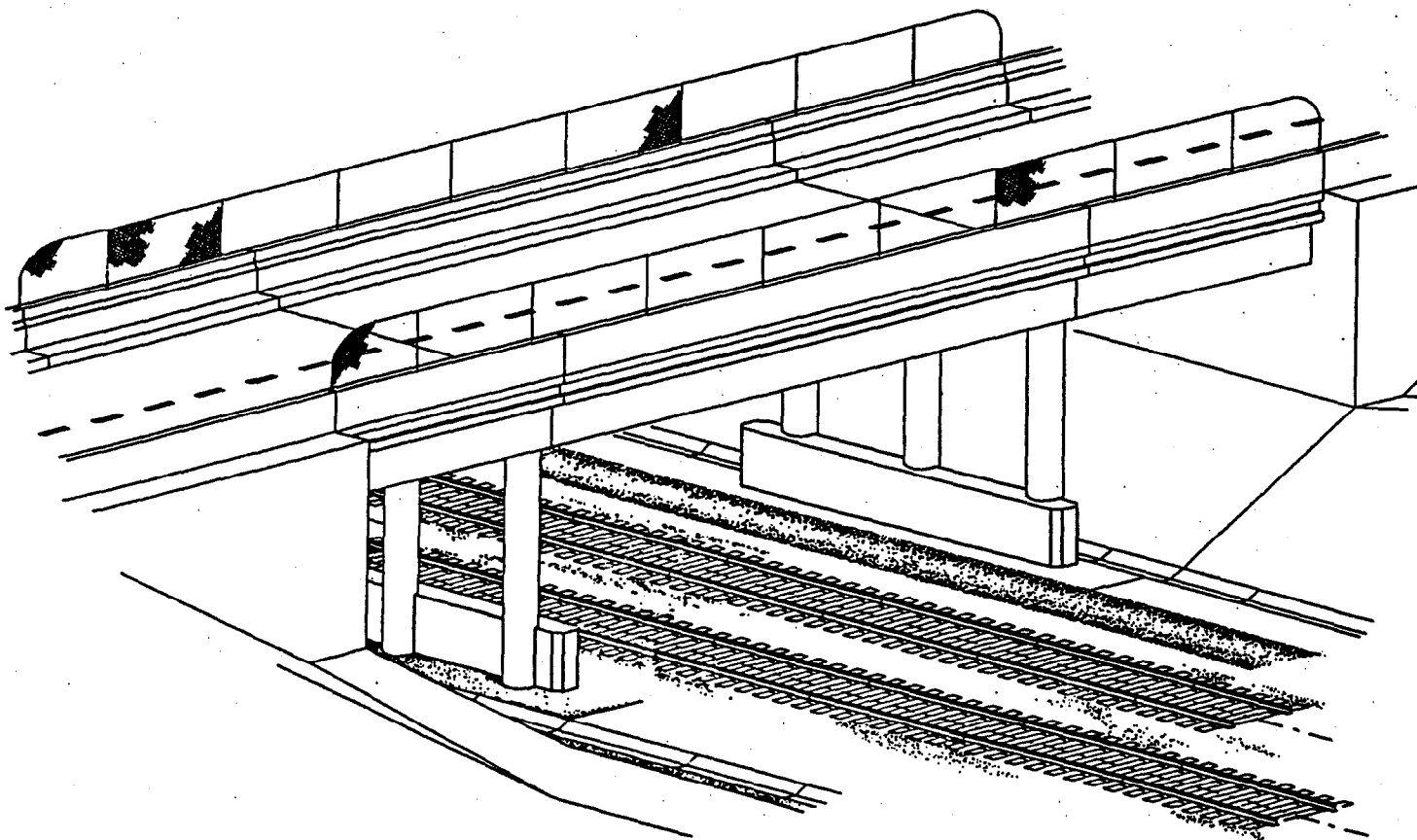


EXHIBIT D

# GUIDELINES FOR DESIGN OF HIGHWAY SEPARATION STRUCTURES OVER RAILROAD (OVERHEAD GRADE SEPARATION)



## UNION PACIFIC RAILROAD

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# UNION PACIFIC RAILROAD COMPANY

## OVERHEAD GRADE SEPARATION STRUCTURES

### I PURPOSE AND SCOPE

The intent of this guideline is to inform public agencies, design engineers, and contractors of Union Pacific Railroad Company's current standards and requirements concerning design and construction of new or modified existing grade separation overhead structures.

To avoid delays during construction, especially in corridor lines with large railroad traffic volumes, Union Pacific Railroad recommends the use of prefabricated type structures that will minimize track interference and not require track outages during construction.

Design of overhead structures over corridor lines with large railroad traffic volume should include a sequence of construction, which does not require train service interruption. Agencies should consult with the Manager of Industry and Public Projects during the early stages of the design process to determine the operating requirements, volume of train traffic and the possibility of securing track windows for the proposed design and method of construction. If track windows are requested, the Manager of Industry and Public Projects shall consult with the Service Unit Superintendent and submit to the Manager of Structures Design any arrangements for windows or schedules that are worked out during the plan submittal. **Keep in mind that Union Pacific Railroad will not commit to something that it will not be able to keep in the future due to changes of traffic patterns or operational needs.**

The public agency or their representative shall provide information requested on the attached data sheet, to the Manager of Industry and Public Projects of the district where the project is located, in the preliminary stages of the project. See Data Sheet, Appendix A.

It is recommended that the agency or their representative complete the attached Overhead Submittal Checklist and submit to the Manager of Industry and Public Projects with preliminary or final plans of the project. See Overhead Submittal Checklist, Appendix A.

The requirements addressed in this guideline should be followed for all

structures over the Union Pacific Railroad tracks or structures constructed within the Railroad right-of-way. Compliance with the requirements herein will expedite the design review approval, and construction review submittals.

## **II STANDARD DRAWINGS AND GUIDELINES**

Design and construction of overhead grade separation structures shall comply with the following standard drawings and guidelines:

### **1. Standard Drawings – APPENDIX B**

The following standard drawings shall be used for design and construction of overhead structures:

- a) Union Pacific Railroad Standard Drawing **No. 0035** "Barriers and Clearances to Be Provided at Highway, Street, and Pedestrian Overpasses", current issue. See Appendix B.
- b) Union Pacific Railroad Standard Drawing **CE # 106613** "General Shoring Requirements", current issue. See Appendix B.
- c) Union Pacific Railroad Standard **UP- OH1** "Barriers, Fences, and Splashboards to Be Provided at Highway, Street, and Pedestrian Overpasses", current issue. See Appendix B.
- d) Union Pacific Railroad Standard **UP- OH2** "Typical Sections at Abutment Slope", current issue. See Appendix B.

### **2. Guidelines**

The following Union Pacific Railroad Guidelines are separate documents and shall be used during the construction of the Overhead structures as required.

Plans or special provisions of the project should refer to them or include them in the bid documents:

- a) Falsework – "Guidelines for Design and Construction of Falsework for Structures over Union Pacific Railroad".
- b) Shoring – "Guidelines for Design and Construction of Shoring Adjacent to Active Union Pacific Railroad Tracks".